

NEW AUSTRALIAN CAVE CARABIDAE (COLEOPTERA)

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[Read 28th September, 1966]

Synopsis

Three new species of cave-dwelling Carabidae are described, viz. *Idacarabus cordicollis* (Tasmania), *Thenarotes speluncarius* (Nullarbor Plain) and *Anomotarus subterraneus* (South Queensland). *A. subterraneus* is of interest in providing a link between the cavernicolous *Speotarus* species and related, surface-dwelling lebiines.

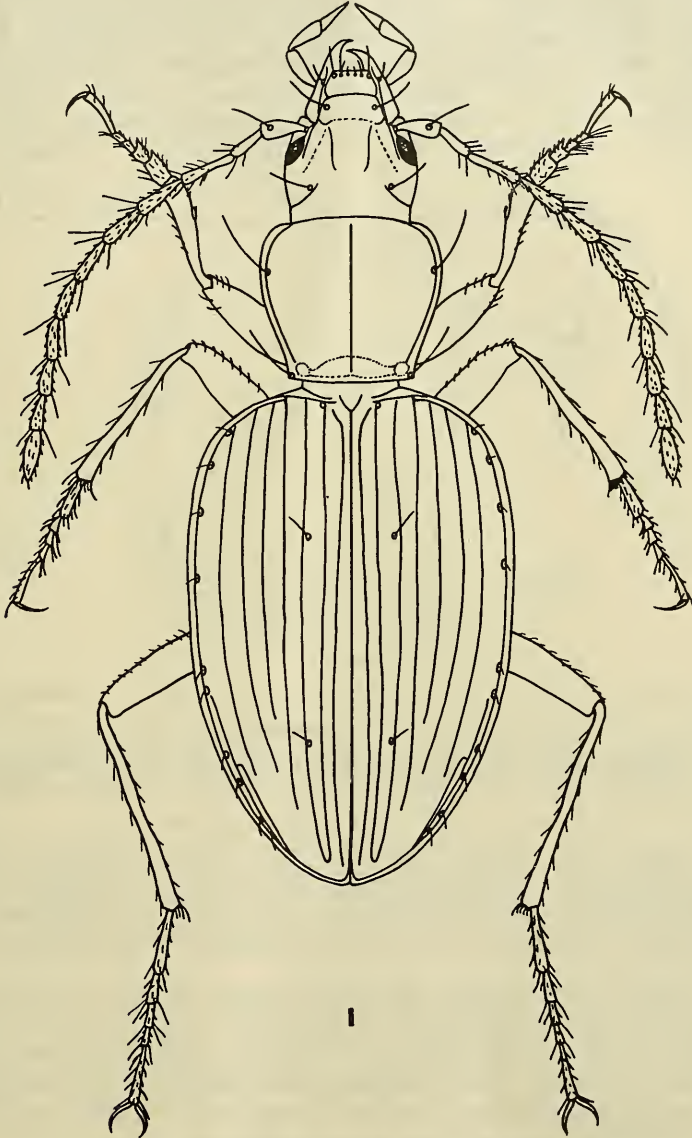


Fig. 1. *Idacarabus cordicollis* sp. n., paratype male.

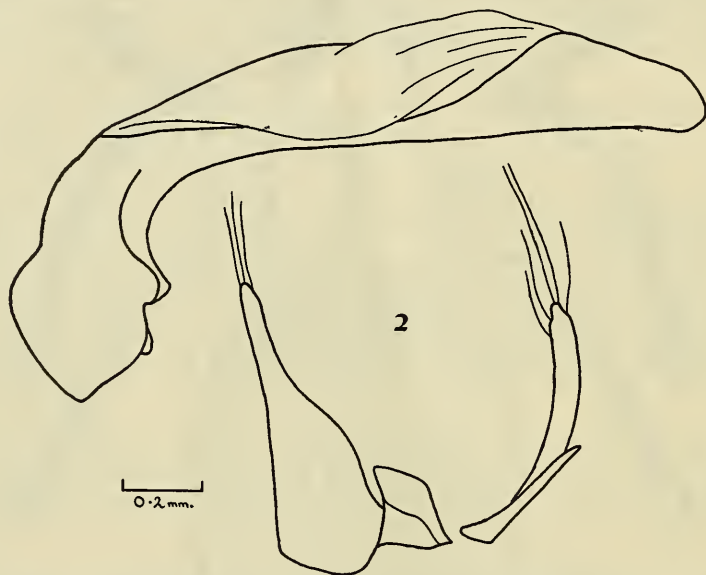
Subfamily MERIZODINAE

IDACARABUS CORDICOLLIS, sp. n.

(Figs 1-2)

Elongate-oval; subapterous; dark piceous, the appendages lighter.

Head ovoid, rather small; eyes small, not prominent; labrum trapezoidal, sexsetose; mandibles slender, acutely pointed; antennae rather long, pubescent from the middle of the third segment. Pronotum cordiform, slightly transverse; anterior and posterior marginal setae present, the latter at the hindangles. Elytra oval, lightly striate; no scutellary striae; humeri effaced; third intervals with two setigerous pores, situated near the third striae. Legs rather long, slender; male anterior tarsi with two basal segments expanded and inwardly



Figs 2-3. Aedeagi in left lateral view. 2. *Idacarabus cordicollis* sp. n. (parameres detached).

dentate. Aedeagus (Fig. 2) with a slender median lobe; parameres dissimilar, the left triangular, trisetose apically, the right styloid, quinqueseose apically.

Length, 5.2-6.4 mm.; max. width, 2.3-2.6 mm.

Type (male) and *allotype* (female).—Tasmania, Newdegate Cave, near Hastings, 13.xi.63 (E. Hamilton-Smith), in the South Australian Museum. Four *paratypes* (both sexes, one immature): King George V Cave, near Hastings, 14.xi.63 (E. Hamilton-Smith) in the South Australian Museum and in the author's collection.

This species is, in reality, the second known member of the genus, for *flavipes* Lea, referred originally and tentatively by its author to *Idacarabus*, has now proved to be a trechine and must therefore be removed to another genus.

Idacarabus cordicollis is less obviously cave-adapted than *I. troglodytes* Lea, the generic type species from Ida Bay Caves, and the two may readily be separated as follows:—

Form elongate; pronotum elongate, lozenge-shaped, the posterior marginal seta wanting; eyes very small; colour castaneous; length 6.5-7.5 mm.	<i>troglodytes</i> Lea
Form less elongate; pronotum slightly transverse, cordate, the posterior marginal seta present at hindangle; eyes larger; colour piceous; length 5.2-6.4 mm.	<i>cordicollis</i> sp. n.

Subfamily HARPALINAE

THENAROTES SPELUNCARIUS, sp. n.

(Figs 3-4)

Mostly brownish-testaceous, the appendages lighter; eyes dark; wings well developed.

Head rather small; eyes prominent, lightly inclosed behind; labrum rectangular, sexsetose; mandibles short, acutely pointed; antennae slender, of average length for the subfamily. Pronotum slightly transverse; anterior angles well marked, subprominent; posterior angles obtuse; sides evenly rounded on front third, then lightly and obliquely contracted to base; base and apex subtruncate; basal foveae scarcely apparent; anterior marginal seta present at front quarter; posterior seta wanting. Elytra elongate-oval, widest a little behind middle, regularly but lightly striate; striae unpunctured; no scutellary striae; third intervals with one setiferous pore, situated against

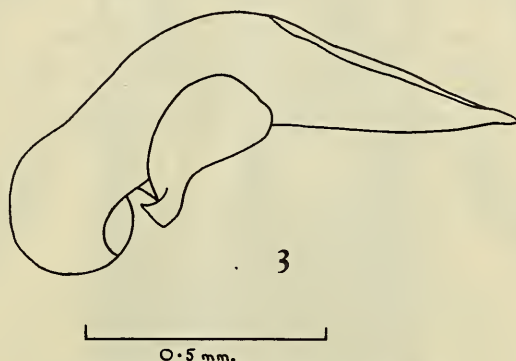


Fig. 3. *Thenarotes speluncarius* sp. n.

the second stria. Legs rather long, slender; tarsi setose above; male anterior and intermediate tarsi expanded and spongiose beneath. Aedeagus (Fig. 4) stout; median lobe tubular, with a dorsal orifice, the apex unarmed; parameres conchoid.

Length, 5-6 mm.; max. width, 2-2.3 mm.

Type (male).—Western Australia, Abrakurrie Cave (Nullarbor Plain), 13.i.64 (P. Aitken), in the South Australian Museum. Fifteen *paratypes* (both sexes), same locality as type, various dates (1960-64) (P. Aitken and E. Hamilton-Smith) in the South Australian Museum and the author's collection.

The placing of this new cavernicolous species in *Thenarotes* Bates (type species *tasmanicus* Bates) must be regarded as provisional, pending an overall revision of the Australian Harpalinae. However, *T. speluncarius* certainly falls within the tribe Pelmatellini, to which the cavernicolous *Notospeophonus* species also belong, but it differs from the latter in possessing setose tarsi and an aedeagus of entirely different form, with no spatulate apex to the median lobe (c.f. Moore, 1964, for aedeagal characters of *Notospeophonus*).

Thenarotes speluncarius has also been collected in Buckalowie Cave and Cave Number 11, of the South Australian portion of the Nullarbor Plain; seven surface-dwelling species, referable to the genus, range over most of the eastern States.

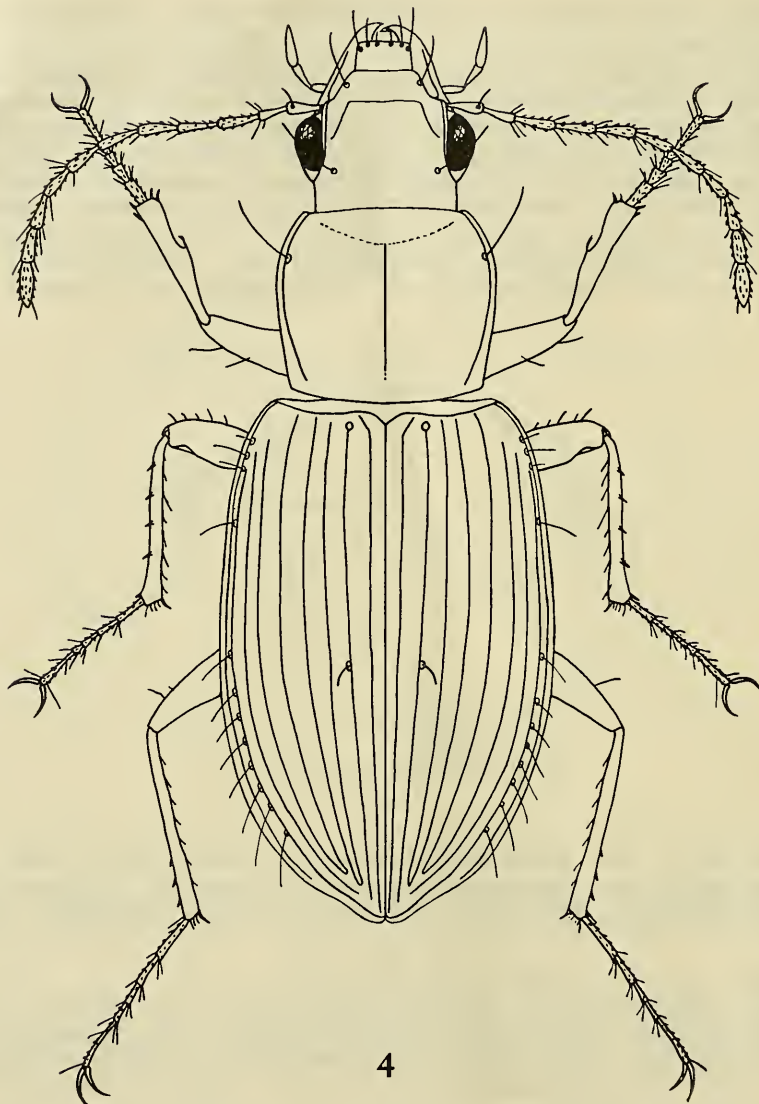


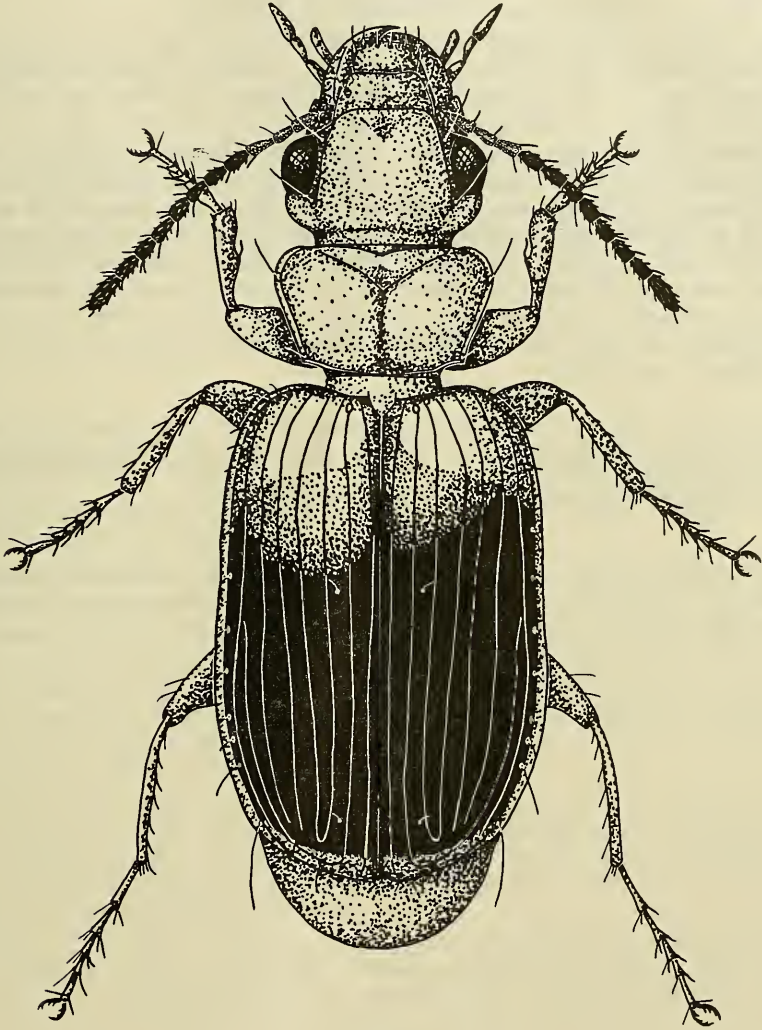
Fig. 4. *Thenarotes speluncarius* sp. n., paratype female.

Subfamily LEBIINAE

ANOMOTARUS SUBTERRANEUS, sp. n.

(Fig. 5)

Form short, depressed, subparallel; fully winged; head, pronotum and appendages brownish-testaceous; eyes black; elytra mostly piceous but humeri widely and margins narrowly brownish-testaceous.



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Fig. 5. *Anomotarus subterraneus* sp. n., paratype female.

Head large, broad, depressed; eyes large and prominent, inclosed in swollen orbits; neck pronounced; labrum subrectangular, transverse, sexsetose; mandibles short, broad, strongly curved and acutely pointed; antennae short, pubescent from the third segment. Pronotum very transverse, widest at front third; sides strongly rounded from anterior angles to widest part, then strongly contracted and slightly sinuate to posterior angles; anterior and posterior

marginal setae present; anterior angles scarcely apparent; posterior angles obtuse but well marked. Elytra rather short, subparallel, striate, the striae unpunctured; scutellary striae wanting; humeri rounded; third intervals with two setiferous pores, one submedian, the other subapical; apex of abdomen bisetose in male, quadrisetose in female. Legs short but slender; male anterior tarsi lightly dilatate and squamose beneath; claws pectinate. Aedeagus of the normal lebiine type, scarcely differing from those of species of *Speotarus* (Moore, 1964).

Length, 4.6–5 mm.; max. width, 1.8–1.9 mm.

Type (male).—South Queensland, Riverton Cave (in bat guano), 8.ii.64 (E. Hamilton-Smith), in the South Australian Museum. Nine *paratypes* (both sexes, same data as for type) in the South Australian Museum and in the author's collection.

This pretty little species may be recognized within its genus by virtue of its short broad form, large head, and characteristic elytral colour pattern. It is the first-discovered cavernicolous member of the genus and, as such, is of special interest in providing an evolutionary link between the surface-dwelling lebiines and the (so far as is known) exclusively cavernicolous species of *Speotarus*. However, although differing markedly in build from most of its congeners, *A. subterraneus* shows no obvious adaptation to the cave environment. Indeed, the prominent eyes and fully developed wings suggest that the beetle may not be an obligate cavernicole.

Acknowledgement

The author is indebted to Mr. E. Hamilton-Smith for the opportunity to study the interesting material dealt with in this paper.

References

- LEA, A. M., 1910.—On some Tasmanian cave-inhabiting Beetles. *Tasm. Nat.*, 2: 53–58.
MOORE, B. P., 1964.—New cavernicolous Carabidae (Coleoptera) from mainland Australia. *J. ent. Soc. Q'ld.*, 3: 69–74.